Appendix C

Application Fee, and Affidavit of Publication for Informational Meeting Announcement

FORMATION CAPITAL CORPORATION, U. S.
812 SHOUP STREET
SALMON, ID 83467
PH. 208-756-4578

WELLS FARGO BANK, N.A.
www.wellsfargo.com
92-379/1241

5931

5931

PAY TO THE
ORDER OF

$

One Thousand --00/100

DOLLARS

07/15/2008 $************1,000.00

Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706-1255

MEMO

Jason Smith
AUTHORIZED SIGNATURE

⑈000000 5931⑈ ⑈124103799⑈ 1240003531⑈

Details on Back. Security Features Included:

FORMATION CAPITAL CORPORATION, U. S.

5931

Department of Environmental Quality   07/15/2008   5931

2008 Air Permit................ 1,000.00

Total   1,000.00

Get fast results in the...

CLASSIFIEDS

Easy Fun Fast

THE RECORDER HERALD
CLASSIFIED ADVERTISING RATES

First Insertion .... 30¢ per word*
2 and 3 Insertions ... 28¢ per word*
4 and Up .... 24¢ per word*
Bold Type .... 5¢ per word*
(*$4.50 Minimum on all insertions)

Payment must accompany all orders unless the customer has established an advertising account with The Recorder Herald.

Classified Display — $5.25 Col./Inch
Card Of Thanks — $4.90 and up

Call (208) 756-2221

FOR SALE

2002 Chevy Silverado, 4wd pickup, 2500 HD, ext. Cab, one owner, 89,000 miles, $11,000, call 756-4268.   S-7-3-2tp

Three wheel Honda, Powder River horse rack for a pickup, swamp cooler, phone evenings (208) 894-2467.   S-6-26-3tp

For sale - four-year-old Molly mule, trained to pack, 879-5559.   S-7-3-2tp

Haulmark enclosed cargo trailers, flat-bed, dump, ATV trailers. Drive a little save a lot. Northwest Trailer Sales, Hamilton, Montana, toll free 1-866-363-0464.   S-3-22-tfc

HORSE TRAILERS for sale. Karl Tyler Chevrolet, Missoula, Mt. 1-800-227-2438.   S-11-06-tfc

FIRE STARTER OR PACKING - *The Recorder Herald*, 519 Van Dreff St. - Only 10¢ a pound.   S-9-8-tfc

GARAGE SALE

Yard sale Saturday, July 12, 8 a.m. to 2 p.m., 609 Broadway Street. GS-7-10-1tp

Two family garage sale, no junk! Baby items, electric stove, gas fireplace, exercise equipment, books, etc, 404 Copper Street, 8 a.m. to noon, no early birds.   GS-7-10-1tp

Multifamily stuff reduction including fabric, July 12, 9 a.m. to noon, Highway 93 South, Apache Way, watch for signs.   GS-7-10-1tp

Two family yard sale, Highway 93 South near Shoup Bridge, July 11 and 12.   GS-7-10-1tnc

Fabric and notions only sale inside at 206 W. 3rd Ave. Saturday, July 12, 7 a.m. to 1 p.m. or by appointment, 240-8454. Hundreds of yards of assorted new fabric.   GS-7-10-1tp

---

FOR RENT

Two bedroom, one bath house in town, garage, propane heat, electric stove, fridge, laundry hookups, $480 plus deposit, 756-8497.   R-7-10-2tp

Retail space for rent or lease, 504 Main Street, approximately 2,300 square feet available now, call (208) 940-0394.   R-7-3-5tp

Three bedroom, two bath house ready by August 1, new roof, air condition, heat pump, new flooring, 209 Fairmont, need references, may be able to rent with option to buy, $650, call Linda, 756-6635.   R-7-10-1tp

$400, 506 Main Street, one bedroom, one bath upstairs unit, like new inside, refrigerator, microwave, secured entry, blinds, water, trash sewer included, (208) 756-6911, (208) 940-0394.   R-6-26-4tc

Two bedroom, 1½ bath apartment with W/D hookups, $495 per month, $500 deposit, call 993-0181.   R-7-10-tfc

One bedroom apartment in duplex. Large kitchen and living room, nice yard, available early July, references required, $435 per month. (208) 756-4485. R-7-10-1tp

Sungate Apartments - Beautiful 1, 2, and 3 bedroom units. Please call 756-4166 for availability and price. Office located at 360 N. Margaret Street in Salmon, TDD 1-800-545-1833 ext. 298. Now accepting Section 8 Vouchers. Check out our website: www.sungateapartments.net.   R-9-6-tfc

Office Space - downtown location, easy parking, low rates starting at $240 a month, including utilities. 756-4489 or 3180.   R-8-16-tfc

Three bedroom, one bathroom, $585 per month, call Paige Oeding Real Estate at 756-2670.   R-6-26-tfc

Two bedroom, 1½ bath apartment with the Professional Plaza 1301 S Main. Paved off street parking, office divided into two rooms plus full bathroom, $450 per month, 865-2212.   R-6-19-4tp

One bedroom apartment, $340 plus deposit and electric, Shadow Ridge Apartments 756-8223.   R-3-13-tfc

Rent Adjusted To Income - B&H Apartments is currently accepting applications for future openings in family and elderly apartments. Rent is based on income due to Section 8 Idaho Housing guidelines. Pick up an application at 701 Imperial Way Apartment 3C or call 756-4918.   R-7-15-tfc

600 square foot nice clean office located in the Professional Plaza 1301 S Main.   [continued]

LOST AND FOUND

IF YOU HAVE FOUND or lost an item, *The Recorder Herald* will advertise it in the classified section for one week *FREE* of charge.

HELP WANTED

Salmon School District No. 291 is seeking qualified applicants for the following positions: high school head coach for boys basketball, girls basketball, cross-country coach; substitute teachers; government-economics teacher; Title One paraprofessional; bus drivers. Please contact the Salmon School District at (208) 756-4271.   HW-7-10-1tc

Be your own boss! Seeking experienced satellite installation subcontractors, $70 1-room install! Start immediately! Proof of Cert. and Ins. required. Contact Cliff at 866-457-0766. Email to: cliff@starwestsatellite.net, www.starwestsatellite.net.   HW-6-26-6tp

Independence Inc. is now taking applications for a licensed RN. Apply in person at 905 S Main St., Salmon, Idaho.   HW-5-15-tfc

---

Haddock gets degree

Sarah E. Haddock, a 2002 graduate of Salmon High School and a 2006 graduate of the University of Idaho, received a degree in Medial Technology from Sacred Heart Medical Center in Spokane, Washington, June 26, 2008.

She has accepted a postition at Whitman Hospital & Medical Center in Colfax, Washington.

REAL ESTATE

Gorgeous home at the mouth of Tower Creek. Built in 2006 this home boasts 1,920 square feet of single level living. Three bedrooms, two baths, great room, custom kitchen, laundry room, 780 square foot oversized two-car garage, luxurious lawn, large redwood deck, post and rail fencing and automatic sprinkler system. 6.2 acres with Tower Creek frontage. Serene setting, lots of wildlife, one of a kind peaceful setting. Brokers welcome. 756-4867.   RE-7-10-4tp

---

Legal Notices

NOTICE TO CREDITORS CASE NO. CV 08-137

IN THE DISTRICT COURT OF THE SEVENTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF LEMHI.

IN THE MATTER OF THE ESTATE OF: GARY R. HAMMOND, Deceased.

NOTICE IS HEREBY GIVEN that JOE F. MCCRORY has been appointed personal representative to administer the estate of GARY R. HAMMOND, deceased. All creditors of this estate are required to present their claims within four (4) months after the date of the first publication of this notice or said claims will forever be barred. Claims against the estate must be presented to the personal representative at the address below indicated and filed with the Court.

DATED this 4th day of June, 2008.

PAUL B. WITHERS for
JOE F McCRORY
Personal Representative
1301 Main Street, Suite 6
Salmon, Idaho 83467
(208) 756-2009   6-26-3tc

ADVERTISEMENT FOR BIDS

Sealed proposals will be re-

McGraw-Hill, 4082 Chinden Blvd., Boise 83714

Idaho Plan Room c/o Blue Prints Plus, 4082 Chinden Blvd., Boise 83714

Child Development Center, Deb Cheney, 806 Poleline, Salmon 83467 (208-756-2016)

Documents may be obtained for bidding purposes from the following location:

DHW Central Office, 450 W. State Street, 9th Floor, PO Box 83720, Boise, ID 83720-0036, (208) 334-0665.

For additional information or questions, contact Tom Long, Department of Health and Welfare, PH: (208) 334-5563.

Project can be reviewed at the Child Development Center, 806 Poleline, Salmon, Idaho. Coordinate site visit with on-site representative Deb Cheney at (208) 756-2016.

A bid bond in the amount of 5% of the total bid amount, including any add alternates; and a Public Works Contractors License for the State of Idaho is required to bid on this work.

Estimated Cost: $52,000 - Allen J. Drennen, Chief, Bureau of Operational Services   7-10-2tc

NOTICE TO CREDITORS CASE NO. CV 08-188

IN THE DISTRICT COURT OF

the Clerk of the Court.

DATED this 18th day of June 2008

WILLIAM MARSHALL TATE
Personal Representative
c/o Milton A. Slavin, Esq.
Slavin Law Office, Chtd.
116 North Center Street
Salmon, Idaho 83467   6-26-3tc

PUBLIC NOTICE

Formation Capital Corporation U.S. (Formation) will hold an informational meeting, in accordance with Idaho code 58.01.01.213.02(a), on Monday July 21st, at Formation's office at 812 Shoup Street in Salmon, Idaho from 7:00 p.m. to 9:00 p.m. The purpose of the meeting will be to provide information on and discuss the company's air quality Permit To Construct application for the Idaho Cobalt Project. The project proposes to mine and concentrate cobalt ore in the near vicinity of the inactive Blackbird mine west of Salmon. The meeting is intended to focus only on air quality aspects of the proposed project. The proposed action would represent a minor source of air pollutants under IDEQ and EPA definitions.   7-10-2tc

IMPOUNDING OF PERSONAL PROPERTY

dozer located at the historic Casto townsite.

4. After the impoundment, the owner may regain possession by contacting the Middle Fork District Ranger at HC 63 Box 1669, Challis, Idaho, 83226, providing title documentation or other proof of ownership, and paying the costs of advertising, removing, and storing the property. If the property is not redeemed prior to October 24, 2008, it may be disposed of as provided by Secretary of Agriculture Regulation 36 CFR 262.12.

Signed at Challis, Idaho this 3rd day of July, 2008
/s/ Tom Gionet (for):
CHRIS GROVE
District Ranger
Middle Fork Ranger District
Salmon-Challis National Forest   7-10-1tc

NOTICE OF PROPOSED CHANGE OF WATER RIGHT TRANSFER NO. 74829

EVELYN R CARLSON and THOMAS H CARLSON, PO BOX 206, LEADORE ID 83464, has filed Application No. 74829 for changes to the following water rights within LEMHI County: Right No. 75-14483 and Right No. 75-14485; to see a full description of these rights and the proposed transfer, please see:

the place of use to resolve BLM objections and to reflect actual irrigating practices. The point of diversion remains the same in Lot 4 SWNE 24 Sec 24 T16N R20E for 2.90 cfs. The place of use is in Sec 24 T16N R20E for 122.5 acres and in Sec 19 T16N R21E for 34 acres for a total of 156.5 acres.

Protests may be submitted based on the criteria of Sec 42-222, Idaho Code.

Any protest against the proposed change must be filed with the Department of Water Resources, Eastern Region, 900 N Skyline Dr Ste A, Idaho Falls ID 83402 together with a protest fee of $25.00 for each application on or before July 28, 2008. The protestant must also send a copy of the protest to the applicant.

David R. Tuthill, Jr., Director   7-10-2tc

HARBER DRILLING INC

Appendix D

Emission Inventory and Emission Source Supporting Documents

Attachment 1

Emission Inventory

Source ID	Source	NOx tpy	CO tpy	PM10 tpy	SOx tpy	TOC tpy	NOx lbs/hr	CO lbs/hr	PM10 lbs/hr	SOx lbs/hr	TOC lbs/hr	PM lbs/hr	PM tpy	Arsenic ton/yr from PM t/yr	Cobalt lbs/hr	Nickel ton/yr from PM t/yr		
EP101	1900-GE-901 - Generator	3,108	0.357	0.0705	1.132	0.018	12.434	1.429	0.2822	4.526	0.071			4.02E-03	4.75E-03	1.13E-05		
EP201	1200-DC-201 - Crushing Dust Collector			0.2100					0.1250			0.337	0.566	4.02E-03	4.75E-03	1.13E-05		
EP301	Ore Stockpile			0.0004					0.0157			0.031	0.001	5.68E-06	4.44E-04	1.60E-08	0.00022359	8.30E-07
EP302	1200-LD-201- Tram Bin to Coarse Ore Stockpile			0.0022					0.0013			0.001	0.002	1.59E-05	1.88E-05	4.48E-08		
EP303	Loader grab from Coarse Ore Stockpile			0.0022					0.0013			0.001	0.002	1.59E-05	1.88E-05	4.48E-08		
EP401	Waste Rock Stockpile			0.0002					0.0070			0.014	0.000	2.52E-07	1.97E-04	7.09E-09	9.91349E-05	2.79E-07
EP402	1200-LD-201- Tram Bin to Waste Rock Stockpile			0.0010					0.0016			0.002	0.001	6.82E-07	2.26E-05	1.92E-08		
EP403	Loader grab from Waste Rock Stockpile			0.0289					0.0087			0.018	0.061	4.33E-05	2.58E-04	1.22E-06		
EP404	Loader dump Waste Rock Stockpile into Truck			0.0289					0.0087			0.018	0.061	4.33E-05	2.58E-04	1.22E-06		
EP501	Conc bldg tailings pile			0.0000					0.0002			0.000	0.000	5.45E-09	4.26E-06	1.54E-10		
EP502	Loader grab from Tailings Stockpile			0.0005					0.0001			0.000	0.001	7.26E-07	1.99E-06	2.04E-08		
EP503	Loader dump Tailings to Truck			0.0005					0.0001			0.000	0.001	7.26E-07	1.99E-06	2.04E-08		
EP601	TWSF Waste Rock truck dumping			0.0010					0.0016			0.002	0.001	6.82E-07	2.26E-05	1.92E-08		
EP602	TWSF area management			0.2010					0.2792			0.372	0.268	1.90E-04	5.25E-03	5.36E-06		
EP603	TWSF wind eroision			0.0154					0.6044			1.209	0.031	2.18E-05	1.70E-02	6.14E-07	0.008583111	2.42E-05
EP604	Truck Dumps Tailings TWSF			0.0007					0.0001			0.000	0.001	4.63E-07	1.27E-06	1.30E-08		
EP901	Roads (tram scenario)			1.5856					1.0474									
EP1001	Loader Traffic			0.2497					0.1486									
EP1101	1200-BN-201 - Mined Rock to Tram Bin			0.0032					0.0016			0.002	0.003	1.68E-05	2.26E-05	6.40E-08		
EP1102	1200-FE-201 - Bin to Tram			0.0032					0.0016			0.002	0.003	1.68E-05	2.26E-05	6.40E-08		
EP1201	Loader drop to Primary Crusher feed bin			0.0673					0.0401			0.085	0.142	1.01E-03	1.19E-03	2.85E-06		
EP1401	1200-BN-203 - Fine Ore Bin (in)			0.0049					0.0029			0.003	0.005	3.48E-05	4.11E-05	9.80E-08		
EP1402	1200-BN-203 - Fine Ore Bin (out) fully enclosed			0.0000					0.0000			0.000	0.000	0.00E+00	0.00E+00	0.00E+00		
EP1501	1400-SI-401 - Cement Silo (in)			0.0007					0.0068									
EP1502	1400-SI-401 - Cement Silo (out) fully enclosed			0.0001					0.0006									
EP1601	Underground emissions vented from mine mouth	4,688	18,476	1.6729	0.552		4,816	18,982	1.5575	0.567		0.025	0.103	5.43E-04	3.50E-04	2.07E-06		
EP1701	Load /Unload at Topsoil stockpile			0.0001					0.0008									
EP1702	Topsoil Stockpile			0.0075					0.2940									
	Total TRAM SCENARIO	7.8	18.8	4.1583	1.7	0.0	17.3	20.4	4.4388	5.1	0.1	2.122	1.253					

NO TRAM SCENARIO   These sources replace the yellow Tram Only sources. Truck dump Waste Rock is from Mine to TWSF instead of from Waste rock stockpile at the tram to TWSF

Source ID	Source	NOx tpy	CO tpy	PM10 tpy	SOx tpy	TOC tpy	NOx lbs/hr	CO lbs/hr	PM10 lbs/hr	SOx lbs/hr	TOC lbs/hr	PM lbs/hr	PM tpy	Arsenic ton/yr	Cobalt lbs/hr	Nickel ton/yr		
EP0901	Roads (no tram scenario)			5.7424					3.8186									
EP1301	Mined Rock truck dump			0.0032					0.0016			0.002	0.003	1.68E-05	2.26E-05	6.40E-08		
EP1303	Loader grab from mined rock pile			0.0032					0.0016			0.002	0.003	1.68E-05	2.26E-05	6.40E-08		
EP1304	Loader drop to Truck			0.0962					0.0481			0.102	0.203	1.07E-03	1.43E-03	4.07E-06		
EP1302	Mined Rock stockpile			0.0002					0.0070			0.0146	0.0004	1.95E-06	2.06E-04	7.43E-09	0.000103858	2.93E-07
EP2001	Truck Dump Crusher Ore Pile (no tram scenario)			0.0022					0.0013			0.001	0.002	1.59E-05	1.88E-05	4.48E-08		
	Total NO TRAM SCENARIO	7.8	18.8	8.3551	1.7	0.0	17.3	20.4	7.2475	5.1	0.1	2.201	1.336	0.0070	0.0310	0.00003		

SUNSHINE PORTAL SCENARIO   This scenario matches the No Tram scenario except for a different mine portal location, shorter roads, and no 1301-1304 transfer to alrger trucks outside the mine

Source ID	Source	NOx tpy	CO tpy	PM10 tpy	SOx tpy	TOC tpy	NOx lbs/hr	CO lbs/hr	PM10 lbs/hr	SOx lbs/hr	TOC lbs/hr	PM lbs/hr	PM tpy	Arsenic ton/yr	Cobalt lbs/hr	Nickel ton/yr		
EP 3001	For the Sunshine Portal scenario: EP 3001 replaces EP1601.	4,688	18,476	1.6729	0.552	0.000	4,816	18,982	1.5575	0.567	0.000	0.025	0.103	0.000542776	0.00070065	1.09E-08	0.000542776	
EP 0902	Roads (Sunshine portal scenario)			3.7144					2.4569									
	Total SUNSHINE PORTAL SCENARIO	7.8	18.8	6.2220	1.7	0.0	17.3	20.4	5.8262	5.1	0.1	2.080	1.124					

universally represents tram scenario only emissions
universally represents tram scenario only emissions
All model sources named in blue highlights on each calculation worksheet
Model source parameter derivation documented in blue text on each worksheet for each model source
Green hourly emission rates are only for hours with wind speed over 12 mph

Ore processing emissions
Arsenic bearing PM

Cobalt source emission rates conservatively assumeshourly emission rate for PM=2*PM-10 hourly emission rate
Arsenic source emission rates uses calculated annual PM emissions

3 Options for Stand-by Generator, all EPA Tier II Certified

Option 1

Caterpillar C27   800 KW

	NOx	CO	PM	SOx (l/hp, not /KW) AP-42 (.00809)(S%)	HC	Total Emissions
Manuf guar (g/KW-hr)	7.05	0.31	0.032		0.04	
Manuf (lbs/KW-hr)	0.0155	0.0007	0.0001	0.0040	0.0001	
lbs/hr	12.434	0.547	0.056	4.526	0.071	17.6
tpy	3.108	0.137	0.014	1.132	0.018	4.4

Stack exh temp (dergees F)   955
Stack exh flow rate (acfm)   6049.5
Stack exit diameter (inches)   8

*Assumes generator will be permitted as a stand-by unit not to exceed 500 hrs/yr operation.

Reference:	AP-42 Section 3.4	Table 3.4-1
Max HP, any model	1119	Model Source name -
Max hrs/day=	24	EP101
Max hrs/yr=	500	All model stack data from manufacturer's specifications
Max sulfur % in deisel	0.5	Green highlight shows most conservative parameters used in single modeling analyses

Option 2

Detroit Diesel MTU 750RXC6DT2   750 KW

	NOx	CO	PM	SOx (l/hp, not /KW) AP-42 (.00809)(S%)	HC	Total Emissions
Manuf guar	4.173	0.81	0.09		NA	
Manuf (lbs	0.0092	0.0018	0.0002	0.0040	NA	
lbs/hr	7.360	1.429	0.159	4.526	NA	13.5
tpy	1.840	0.357	0.040	1.132	NA	3.4

Stack exh temp (dergees F)   1040
Stack exh flow rate (acfm)   5297.0
Stack exit diameter (inches)   8

Option 3

Cummins 750 DQFAA   750 KW

	NOx	CO	PM	SOx (l/hp, not /KW) AP-42 (.00809)(S%)	HC	Total Emissions
Manuf guar	5.33	0.62	0.16		0.12	
Manuf (lbs	0.0118	0.0014	0.0004	0.0040	0.0003	
lbs/hr	9.400	1.093	0.282	4.526	0.212	15.5
tpy	2.350	0.273	0.071	1.132	0.053	3.9

Stack exh temp (dergees F)   816
Stack exh flow rate (acfm)   6310.0
Stack exit diameter (inches)   NA

Emission factors from AP-42 Section 3.4, Table 3.4-3 and 4

Pollutant	EF	Hrs/yr	Units	lb/yr	tons/yr	EPA regulated HAPs tons/yr	Max lb/hr	avg lb/hr
Benzene	7.76E-04	500	lbs/hp-hr	434.17	0.2171	0.2171	0.8683	0.0496
Toluene	2.81E-04	500	lbs/hp-hr	157.22	0.0786	0.0786	0.3144	0.0179
Xylenes	1.93E-04	500	lbs/hp-hr	107.98	0.0540	0.0540	0.2160	0.0123
Propylene	2.79E-03	500	lbs/hp-hr	1561.01	0.7805		3.1220	0.1782
Formaldehyde	7.89E-05	500	lbs/hp-hr	44.14	0.0221	0.0221	0.0883	0.0050
Acetaldehyde	2.52E-05	500	lbs/hp-hr	14.10	0.0070	0.0070	0.0282	0.0016
Acrolein	7.88E-06	500	lbs/hp-hr	4.41	0.0022	0.0022	0.0088	0.0005
Napthalene	1.30E-04	500	lbs/hp-hr	72.74	0.0364	0.0364	0.1455	0.0083
Acenaphthylene	9.23E-06	500	lbs/hp-hr	5.16	0.0026		0.0103	0.0006
Acenaphthene	4.68E-06	500	lbs/hp-hr	2.62	0.0013		0.0052	0.0003
Fluorene	1.28E-05	500	lbs/hp-hr	7.16	0.0036		0.0143	0.0008
Phenanthrene	4.08E-05	500	lbs/hp-hr	22.83	0.0114		0.0457	0.0026
Anthracene	1.23E-06	500	lbs/hp-hr	0.69	0.0003		0.0014	0.0001
Fluoranthene	4.03E-06	500	lbs/hp-hr	2.25	0.0011		0.0045	0.0003
Pyrene	3.71E-06	500	lbs/hp-hr	2.08	0.0010		0.0042	0.0002
Benz(a)anthracene	6.22E-07	500	lbs/hp-hr	0.35	0.0002		0.0007	0.0000
Chrysene	1.53E-06	500	lbs/hp-hr	0.86	0.0004		0.0017	0.0001
Benzo(b)fluoranthene	1.11E-06	500	lbs/hp-hr	0.62	0.0003		0.0012	0.0001
Benzo(k)fluoranthene	2.18E-07	500	lbs/hp-hr	0.12	0.0001		0.0002	0.0000
Benzo(a)pyrene	2.57E-07	500	lbs/hp-hr	0.14	0.0001		0.0003	0.0000
Indeno(1,2,3-cd)pyren	4.14E-07	500	lbs/hp-hr	0.23	0.0001		0.0005	0.0000
Dibenz(a,h)anthracen	3.46E-07	500	lbs/hp-hr	0.19	0.0001		0.0004	0.0000
Benzo(g,h,i)perylene	5.56E-07	500	lbs/hp-hr	0.31	0.0002		0.0006	0.0000
Total PAH	2.12E-04	500	lbs/hp-hr	118.61	0.0593		0.2372	0.0135

Emissions in AP-42 are < values listed					1.280	0.417		
Emissions in AP-42 are < values listed					2.264	0.539		

PM10 Calculations for ICP Stock Piles

Max daily volume - ore   1067   tons
Max daily volume - waste   444   tons

Assumes:
- Density of the the piles is 15.1 ft³/ton.
- Trapezoid shaped:
  - Total height of the stock pile is 6'.
  - Top width of the stock pile is 12'.   133 lbs/ft3
  - Bottom width of the stock pile is 24'.
  - Base to height ratio of 1 to 2.
- Primary factors influencing dust emissions from stock piles are the wind velocity, surface area, and silt content (weight %) of the material.

Ore stockpile

Volume =   16111.7   cubic feet

Area of the trapezoid = ½ x height x [top width (a) + bottom width (b)]

Area =   108   square feet

Length = volume / area =   149.2   feet

Surface area of trapezoid affected by wind = area of top + area of both ends + area of both sides

Top area = (12')(149.2) = 1790.4 ft²
End area = (2)(108) = 216 ft²
Side area = (2)(8.5)(149.2) = 2536.4 ft²
     Total area = 4542.8 ft²

Waste Stockpile
444 tons x 15.1 ft³/ton = 6704.4 ft³

Area of the trapezoid = ½ x height x [top width (a) + bottom width (b)]

= ½ x 6' x (12' + 24') = 108 ft²

Length = volume / area = 6704.4 ft²/ 108 ft² = 62.08 ft

Surface area of trapezoid affected by wind = area of top + area of both ends + area of both sides

Top area = (12')(62.08) = 744.93 ft²
End area = (2)(108') = 216 ft²
Side area = (2)(8.5)(62.08') = 1055.36 ft²
     Total area = 2016.29 ft²

Portal Mined Rock Stockpile
500 tons (max) x 15.1 ft³/ton = 7550 ft³

Area of the trapezoid = ½ x height x [top width (a) + bottom width (b)]

Area = ½ x 6' x (14' + 28') = 126 ft²

Length = volume / area = 7550 ft³/ 126 ft² = 59.92 ft

Surface area of trapezoid affected by wind = area of top + area of both ends + area of both sides

Top area = (14')(59.92) = 838.89 ft²
End area = (2)(126') = 252 ft²
Side area = (2)(8.5)(59.92') = 1018.64 ft²
     Total area = 2109.52 ft² = 0.0484 acres

Top Soil Stockpile
600   foot diameter

A=p* r²
A=3.1415926535*(300)(300)
A =   282743.3 ft²

Dust Emissions

Dust emissions from the ore and waste piles were estimated using the methodology presented in *Emission Estimation: Alternative Methodology* (WRAP Fugitive Dust Handbook) Chapter 9.3 on Storage Pile Wind

Annual TSP emissions factor equation for wind blown dust from active storage piles:

TSP (lb/day/acre of surface) = 1.7 (s/1.5)(f/15)
TSP (lb/year/acre of surface) = 1.7 (s/1.5)(365 [365-p]/235)(f/15)

Where, s = silt content of material (weight %) =   6.4   conservative mean for gravel roads, high because most materials will be coarse rock
p = number of days per year with at least 0.01 inches of precipitation =   0   documented on Roads Calculations worksheet, no credit for frozen winter because piles could be worked then

f = percentage of time the unobstructed wind speed is greater than 12 mph at the mean pile height. =   5.6%

% calculated from 2004 onsite met data used for modeling analysis

From WRAP Fugitive Dust handbook Section 9.3, Based on the PM10/TSP ration of 0.5 for wind blown dust from active storage piles published in Section 13.2.5 of AP-42 and a PM2.5/PM10 ratio of 0.15 for wind blown dust, the PM10 and PM2.5 emission factor equations (in units of lb/day/acre) would be:

PM10 (lb/year/acre) =   0.5   times TSP (lb/acre/year)

Calculations:

Ore and waste piles are dumped by the haul trucks in a straight line (trapezoidal-shaped pile), giving a total wind exposed area of 4543 ft² for a1067 ton pile and 2106 ft² for a 444 ton pile.

	lb/yr/acre of surface	lbs/hr/acre of s/c for hrs (assume f = 100% in calculate hrly max EF to be used in model with wind speed dependency).
E$_{TSP}$ =	15.3516	0.3022
E$_{PM10}$ =	7.6758	0.1511

Ore stockpile: 4543 ft² / 43,600 ft²/acre = 0.0794 acre   0.1042 acres
Waste rock stockpile: 0.0462 acres
Portal Mined Rock Stockpile   0.0484 acres
Conc building tailings stockpile   est.   0.01 acres
Topsoil stockpile   6.4849 acres

Control efficiency   Tailings stockpile   90%   from 18-20% moisture content, removed within 24 hours, wind protection from bldg
    Topsoil stockpile   70%   From soil moisture initially and finally, revegetation and inactivity during most of project life would likely result in higher wind erosion control

	mean size (acres)	PM-10 EF (lb/yr/acre)	PM-10 EF (lb/hr/acre when winds >12 mph threshold)	Control eff	Uncontrolled PM10 lb/hr (when wind speed over 12 mph)	PM10 tons/yr	Controlled PM10 lb/hr (when wind speed over 12 mph)	PM10 tons/yr	Model Source Name	Controlled PM lbs/hr	Controlled PM tons/yr
Ore stockpile beside crusher bldg	0.1042	7.6758	0.1511	0%	0.015746	0.0004	0.0157	0.0004	EP301	0.0315	0.0008
Waste Rock Stockpile	0.0462	7.6758	0.1511	0%	0.006981	0.000177	0.0070	0.0002	EP401	0.0140	0.0004
Portal Mined Rock Stockpile	0.0484	7.6758	0.1511	0%	0.007314	0.000186	0.0073	0.0002	EP2002	0.0146	0.0004
Tailings pile, inside above, small, wet, cleared daily	0.01	7.6758	0.1511	90%	0.001511	3.84E-05	0.0002	0.0000	EP501	0.0003	0.0000
Topsoil stockpile	6.4849	7.6758	0.1511	70%	0.979946	0.024888	0.2940	0.0075	EP1702	0.5880	0.0149

For all stockpiles, model source parameters are based uypon mean emission ht (top to top third of the pile) and mean area of emissions from sizes documented on this worksheet.

PM10 Calculations for TWSF

Pile surface management

D4 dozer seasonally managing tailings, meeting land use req for compaction that will limit future wind erosion

high moisture content limits emissions

			TWSF daily max feed		
4	max hrs/day				
1440	max hrs/year	1037 tons per day from concentrator	19% moisture content	
14.8	% Moisture content = M	444 tons per day waste rock @	5% moisture content	
		1481 tons total per day @	14.8% average moisture content	

AP-42 Table 11.9-1 Emission factors for Uncontrolled Dust Sources (at western coal mines)

use Efs for overburden

PM10 EF (lbs/hr) = .75 (1.0)*(S^1.5)/(M^1.4)   1037 tons feed from concentrator based upon 1067 tons mined - 30 tons concentrate derived
PM EF (lbs/hr) = (1.0)*(S^1.5)/(M^1.4)

where   M is moisture content (%)
S is silt content (%)

-   The mean silt content is 6.4% (Table 6-2, WRAP Fugitive Dust Handbook, 2006, conservative mean for gravel roads, because most material will be coarse rock).
S=   6.4   %

Model Source Name EP602	Uncontrolled PM-10 emissions			Controlled PM-10 emissions				Controlled PM emissions	
	lb/day	lb/hr	tons/yr	lb/day	lb/hr	tons/yr		lb/hr	tons/yr
	1.1166	0.2792	0.2010	1.1166	0.2792	0.2010		0.3722	0.2680

model source parameters based upon shape of bulldozer operating in activity area

Wind Erosion

Dumping into TWSF covered in Material Transfers

20 acres Max area where soil is not revegetated, covered with moist overlay, or compressed sufficiently to avoid wind erosion at any time

Assumes:

Emissions from dumping have already been accounted for in the Material Transfer calculations (Truck Dumps Tailings).
50% of the tailings will go back into the mine and approximately 500 ton/day could go to the the TWSF. Therefore, using a conservative estimate by duplicating the 400 ton waste rock stock pile emissions (see calculations in the stockpile spreadsheet), and taking an 80% efficiency because the material will be dumped, leveled, compacted, and undisturbed until reclamation, wind erosions will not be a factor after a brief period of time, even without accounting for most of the year being frozen or wet.

Emission factor from Stockpiles worksheet   model source parameters derived as described under stockpile worksheet

			lbs/hr/acre of sfc for hrs wind over 12		Uncontrolled PM-10 emissions			Controlled PM-10 emissions		
	mean size (acres)	PM-10 EF (lb/yr/acre)	mph	Control eff	lb/yr	max lb/hr	tons/yr	lb/day	max lb/hr	tons/yr
TWSF	20	7.6758	0.1511	80%	153.5155	3.0222	0.076758	30.7031	0.6044	0.0154
PM		15.3516							1.208889	0.030703

max lbs/hr assumes 2 times the average daily emission rate   Model Source Name EP603

PM10 Calculations for ICP Roads

Distances are mazes consistent with current facility plans consistent with all planning documents

	1 way distance		DAILY TRAFFIC Trips per day (2 per RT, one in, one out)			Uncontrolled PM-10			Controlled PM-10				INTERMITTENT TRAFFIC Trips per year (2 per RT, one in, one out)								
Model src # Surface vehicles	ft	miles	Van	Pickup	Haul Truck (tram)	Haul Truck (tram)	Haul Truck (tail)	Conc Mix Tk	TOTAL trips VMT (with tram)	% of daily VMT (with tram)	TOTAL trips no tram	% of daily VMT (with tram)	Cement Tk	Shotcrete	Ammonium Nitrate	Diesel Fuel Tk	Gas Fuel Truck	Propane truck	10 Wheel Supply Tk	Misc vendors and visitors	TOTAL
68-73	claim line to intersection	1729	0.32776515	20	16	51			4	40	0.120202	91	0.096972	400		80	300	2	2	46	40	
79-82	intersection to admin/concentrate	460	0.08711212	20				25	4	66	0.073109	65	0.025926	400	268					46	40	
79-82	intersection to crusher	1767	0.33465869		8		20			28	0.120974	59	0.090394									
79-82	intersection to future shop/fuel sta	1238	0.23465469		6		20	25		51	0.154004	51	0.054789				300	2	2			
115-146, 292-295	to Ram portal within claim body	8383	1.58858232	8		51	20			8	0.164175	79	0.574906		268							
84-91, 115-146,	to bottom of TWSF from future shop	3815	0.72252788		2		20	25		47	0.438421	47	0.16547									
292-295	Explosives	800	0.10854991		2					2	0.004352	2	0.001543			80						
EP0921-EP50211	to Sunshine portal within claim line	463	0.08884018	8		102	40					150	0.090478									
	Total VMT per vehicle (tram)		19.1	11.0	0.0	25.8	26.2	1.3	77.5	daily	216.43	daily	128.0	449.4	32.1	140.2	0.9	0.9	14.7	12.8	annually
	Total VMT per vehicle (no tram)		19.1	11.0	110.0	50.9	26.1	1.3	Total VMT	1.00	Total VMT	1.000									
	Increase without tram		0.0	0.0	110.0	25.1	5.9	0.0													
	Total VMT per vehicle (Sunshine portal)		19.1	11.0	37.9	22.7	26.1	1.3													

For daily traffic, assume annual max is 250 days at the daily max
For annual traffic, assume daily traffic = 1/200 annual
Lbs/hr assume all daily traffic is in 8 hrs, worst case because it would take more than 8 hrs to get to daily ottals

No tram scenario only
Tram scenario only   0.348588
Sunshine portal scenario only

Vehicle and Weight	Miles Driven/Day	Miles Driven/Year	Weight, empty	Weight, empty (tons)	Average Weight (tons)	E (lbs/VMT)	Uncontrolled			Controlled		
							lbs/hr	lbs/day	tons/yr	max lbs/hr	lbs/day	tons/yr
Van	19.1	4778.6	0.75	1	0.875	0.121993784	0.44	2.3	0.3	0.09	0.47	0.06
Pickup	11.0	2746.4	0.5	0.75	0.625	0.104852813	0.22	1.2	0.1	0.04	0.23	0.03
Haul truck (tram)	46.1	11519.6	35	75	55	0.786316317	6.79	36.2	4.5	1.36	7.25	0.91
Haul truck (no tram)	187.1	46762.7	35	75	55	0.786316317	27.58	147.1	18.4	5.52	29.42	3.68
Smaller Haul Tk	86.7	21674.1	21	42	31.5	0.611890064	9.95	53.0	6.6	1.99	10.61	1.33
Concentrate 10 wheel	1.3	319.0	11	28	19.5	0.493116634	0.12	0.6	0.1	0.02	0.13	0.02
Cement truck	0.6	128.0	40	80	60	0.817715331	0.10	0.5	0.1	0.02	0.10	0.01
Shotcrete	2.2	449.4	10	20	15	0.438202796	0.18	1.0	0.1	0.04	0.20	0.02
Ammonium Nitrate	0.2	32.1	10	20	15	0.438202796	0.01	0.1	0.0	0.00	0.01	0.00
Diesel Fuel Tk	0.7	140.2	10	20	15	0.438202796	0.06	0.3	0.0	0.01	0.06	0.01
Gas Fuel Tk	0.0	0.9	10	20	15	0.438202796	0.00	0.0	0.0	0.00	0.00	0.00
Propane Tk	0.0	0.9	10	20	15	0.438202796	0.00	0.0	0.0	0.00	0.00	0.00
10 wheel supply tk	0.1	14.7	11	28	19.5	0.493116634	0.01	0.0	0.0	0.00	0.01	0.00
Misc Vendors and visitors	0.1	12.8	1	2	1.5	0.155480219	0.00	0.0	0.0	0.00	0.00	0.00
Totals (with tram)	168.0						7.9	42.3	5.2	1.6	8.5	1.0
Totals (with no tram)	309.0						28.7	153.1	19.1	5.7	30.6	3.8
Totals (Sunshine)	317.0						18.6	99.9	12.3	3.7	19.9	2.5

The facility

Model source parameters derived from mount height and vertical extent of haul trucks (road 5' tall and exit dim 17/5.15). Horizontal model source dimensions based upon 40' road widths, separated volume sources, source emission allocation documented below

$$E = k\left(\frac{s}{12}\right)\left(\frac{W}{3}\right)^a\left(\frac{365 - P}{365}\right)$$

80%   control efficiency for watering and chemical dust suppressant

E = Emission Factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
a, b, k = empirical constants
P = number of days in a year with at least 0.01 inches of precipitation

Allocating controlled emiss per model source

	Model vol ems	Model src name	No tram			
			Cum PM10 lb/hr	CumPM10 ton/yr	Ind PM10 lb/hr	Ind PM10 tons/yr
Claim line to intersection	16	EP901A	0.556856	0.370297965	0.034803	0.02314362
Intersection to crusher / conc bldg / shop	10	EP901B	0.98258	0.653397644	0.008258	0.06533076
to / from Ram portal	90	EP901C	3.30136	2.195342845	0.036682	0.0243027
Intersection to TWSF	25	EP901D	0.901836	0.599570859	0.036065	0.03398283

Road emissions were calculated by assuming:
• Roads are covered with gravel/crush limestone
• The mean silt content is 6.4% (Table 6-2, WRAP Fugitive Dust Handbook, 2006).

should cum Road src emissions	5.74	3.82	5.74	3.82
to / from Sunshine portal 11 EP902	1.19072	0.791806576	0.108247	0.07196242

Constants	PM$_{2.5}$	PM$_{10}$	PM
k	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

			Model src name	With tram			
				Cum PM10 lb/hr	CumPM10 ton/yr	Ind PM10 lb/hr	Ind PM10 lb/hr
Claim line to intersection	16	EP901A	0.190592	0.125897875	0.011912	0.00786862
Intersection to crusher / conc bldg / shop	10	EP901B	0.55272	0.365108399	0.055272	0.03651064
to / from portal	90	EP901C	0.260315	0.171954576	0.002892	0.00191061
Intersection to TWSF	25	EP901D	0.702061	0.463755426	0.028082	0.01855022
should cum Road src emissions	1.71	1.13	1.71	1.13

s= 6.4
W= 7
P= 176   01='97 on-site met data, days w/measured precip
274   01='97 on-site met data, days w/measured precip 6 non frozen months, every day in 6 frozen months (Nov-Apr)

Dust Emission Correction Due to Moisture and Temperature

physical location of the mine property in the Panther Creek Subbasin of the Salmon River at elevations ranging between 6011' and 8100' above sea level, precipitation and temperature will both aid in minimizing dust emissions

PM10 Calculations for ICP Loaders

Loader emissions were calculated by assuming:

6.4% silt (Table 6-2, WRAP Fugitive Dust Handbook, 2006).

83.3	max tons/hr through crusher bldg
1067	max tons per day through crusher building
280000	max tons per year through the crusher building
4	tons per loader load
266.75	loader trips/day =max crusher feed/tons per loader load)
250	feet per loader RT
50	W = tons each loader (100000 lbs each)

	Uncontrolled PM-10			Controlled PM-10		
E (lbs/VMT)	max lbs/hr	lbs/day	tons/yr	max lbs/hr	lbs/day	tons/yr
0.75	0.74	9.51	1.25	0.149	1.903	0.250

Period	max ldr trips/ per	max VMT/ per
hr	20.8	1.0
day	266.8	12.6
year	70000.0	3314.4

Model Source Name EP1001

80% control

for gravel surface with watering and chemical dust suppression

Modeled as an area source covering the short route between piles and the crusher feed bin, vert dims based upon loader width and vert extent, and drop ht

Used measured 72' length, 10' width, rel ht 4' (est mid equipment), vert dim 8' (est equip ht)

AP-42 13.2.2 equation (1a), updated 12/03, for unpaved road traffic on an industrial site
with precip reduction from AP-42 13.2.2.2 equ 2

$$E = k \left(\frac{s}{12}\right)^a \left(\frac{W}{3}\right)^b \left(\frac{365-P}{365}\right)$$

E = Emission Factor (lb/VMT)[1]

s = surface material silt content (%)

W = mean vehicle weight (tons)

a, b, k = emipirical constants

P = number of days in a year with at least 0.01 inches of precipitation

Road emissions were
- Roads are covered with gravel/crush limestone
  - The mean silt content is 6.4% (Table 6-2, WRAP Fugitive Dust Handbook, 2006).

Constants	$PM_{2.5}$	PM_{10}	PM
k	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

s=	6.4	
W=	52	tons, half full, half empty
P=	176	01='07 on-site met data, days w/measured precip
	274	01='07 on-site met data, days w/measured precip 6 non frozen months, every day in 6 frozen months (Nov-Apr)

Crusher Circuit

All Operations inside a building
AP-42 lb/ton EFs used, referenced for each EF
The building is closed. A ventilation system runs all air release through a baghouse with manufacturer's guarantee of 99.95% control efficiency
95.00% Control efficiency is applied to calculated summed emission rates of the equipment

Screening calculations are worst case, assuming everything on the screens is fine
Conveyor emission calculations are worst case because they assume all transfers are uncontrolled, which is generally not the case

Crushing Plant Process - Controlled	Throughput		PM Emission Factor	PM10 Emission Factor	PM Emissions		PM10 Emissions		E-Factor Reference
	tph	tpy			lb/hr	tpy	lb/hr	tpy	
Primary Crushing - Jaw Crusher [1]	83.3	280,000	0.0054 lb/ton	0.0024 lb/ton	0.45	0.76	0.20	0.34	AP-42, 5th Edition, Table 11.19.2-2 Tertiary crushing (uncontrolled)[3]
Secondary Crushing - Cone Crusher[1]	83.3	280,000	0.0054 lb/ton	0.0024 lb/ton	0.45	0.76	0.20	0.34	AP-42, 5th Edition, Table 11.19.2-2 Tertiary crushing (uncontrolled)[3]
Screening - 1-Triple Deck[1]	83.3	280,000	0.025 lb/ton	0.0087 lb/ton	2.08	3.50	0.72	1.22	AP-42, 5th Edition, Table 11.19.2-2 Screening (uncontrolled)
Conveyor Transfers[1,2]	83.3	280,000	0.003 lb/ton/point	0.0011 lb/ton/point	3.75	6.30	1.37	2.31	AP-42, 5th Edition, Table 11.19.2-2 conveyor transfer (uncontrolled)

Uncontrolled building emissions   6.73   11.31   2.50   4.20
Controlled building emissions   0.3365   0.5656   0.1250   0.2100

[1] Moisture content assumed to be 4%; above the moisture content for controlled crushing in the Emission Factor Reference provided.

[2] Process Flow verifies up to a total of 15 drop points are in use at the plant. Not all transfers handle all material, though they're conservatively assumed to here

[3] AP-42 footnotes indicate no data available for primary/secondary crushing, but emission factors for PM_{10} for tertiary crushers can be used as an upper limit for primary/secondary crushing.

Model Source name
EP201
Modeled with manufacturer's specs for baghouse release point

	Fugitive Source	Moisture content	AP-42 Table 11.19-2 PM10 EF	PM-10 EF (lbs/ton)	Max thruput tons/hr	Max thruput tons/day	Max thruput tons/yr	Uncontr Max PM10 emiss lbs/hr	Uncontr PM10 Max emiss lbs/day	Uncontr Max PM10 emiss tons/yr	Control Efficiency	Contr Max PM10 emiss lbs/hr	Contr Max PM10 emiss lbs/day	Contr Max PM10 emiss tons/yr		AP-42 Table 11.19-2 PM EF	Contr Max PM emiss lbs/hr	Contr Max PM emiss tons/yr
EP1101	1200-BN-201 - Mined rock (Ore and waste) to Tram Bin	5%	A	1.60E-05	100	1511	400000	0.0016	0.0242	0.0032		0.0016	0.024176	0.0032		1.60E-05	1.60E-03	3.20E-03
EP1102	1200-FE-201 - Tram Bin to Tram	5%	A	1.60E-05	100	1511	400000	0.0016	0.0242	0.0032		0.0016	0.024176	0.0032		1.60E-05	1.60E-03	3.20E-03
EP302	1200-LD-201- Tram drop to Coarse Ore Stockpile	5%	A	1.60E-05	83.3	1067	280000	0.0013	0.0171	0.0022		0.001333	0.017072	0.00224		1.60E-05	1.33E-03	2.24E-03
EP402	1200-LD-201- Tram drop to Waste Rock Stockpile	5%	A	1.60E-05	100	444	120000	0.0016	0.0071	0.0010		0.0016	0.007104	0.00096		1.60E-05	1.60E-03	9.60E-04
EP403	Loader grab from Waste Rock Stockpile	5%	E	0.00048	18	444	120000	0.0087	0.2135	0.0289		0.008656	0.213526	0.028855		0.00102	1.83E-02	6.10E-02
EP404	Loader dump Waste Rock Stockpile into Truck	5%	E	0.00048	18	444	120000	0.0087	0.2135	0.0289		0.008656	0.213526	0.028855		0.00102	1.83E-02	6.10E-02
EP303	Loader grab from Coarse Ore Stockpile	5%	A	1.60E-05	83.3	1067	280000	0.0013	0.0171	0.0022		0.001333	0.017072	0.00224		1.60E-05	1.33E-03	2.24E-03
EP1201	Loader drop to Primary Crusher feed bin	5%	E	0.00048	83.3	1067	280000	0.0401	0.5131	0.0673		0.04006	0.513136	0.067328		0.00102	8.47E-02	1.42E-01
EP502	Loader grab from Tailings Stockpile	19%	E	0.00007	9	495	130350	0.0007	0.0367	0.0048	90%	6.68E-05	0.003673	0.000484		0.00016	1.41E-04	1.02E-03
EP503	Loader dump Tailings to Truck	19%	E	0.00007	9	495	130350	0.0007	0.0367	0.0048	90%	6.68E-05	0.003673	0.000484		0.00016	1.41E-04	1.02E-03
EP604	Truck Dumps Tailings (18 - 20% moisture content)	19%	C	0.0001	9	495	130350	0.0009	0.0495	0.0065	90%	0.00009	0.00495	0.000652		0.0001	9.00E-05	6.52E-04
EP2001	Truck Dump Crusher Ore Pile (no tram scenario)	5%	A	1.60E-05	83.3	1067	280000	0.0013	0.0171	0.0022		0.001333	0.017072	0.00224		1.60E-05	1.33E-03	2.24E-03
EP1301	Mined Rock truck dump	5%	A	1.60E-05	100	1511	400000	0.0016	0.0242	0.0032		0.0016	0.024176	0.0032		1.60E-05	1.60E-03	3.20E-03
EP1303	Loader grab from mined rock pile	5%	A	1.60E-05	100	1511	400000	0.0016	0.0242	0.0032		0.0016	0.024176	0.0032		1.60E-05	1.60E-03	3.20E-03
EP1304	Loader drop to Truck	5%	E	0.00048	100	1511	400000	0.0481	0.7267	0.0962		0.048092	0.726663	0.096183		0.00102	1.02E-01	2.03E-01
EP1701	Load / unload at topsoil storage pile	20%	A	1.60E-05	100	444	30000	0.0016	0.0071	0.0002	50%	0.0008	0.003552	0.00012		1.60E-05	8.00E-04	1.20E-04
EP601	Truck Dump Waste Rock To TWSF	5%	A	1.60E-05	100	444	120000	0.0016	0.0071	0.0010		0.0016	0.007104	0.00096		1.60E-05	1.60E-03	9.60E-04
EP1401	1200-BN-203 - Fine Ore Bin (in)	NA	D	0.00014	83.3	1067	280000	0.0117	0.1494	0.0196	75%	0.002916	0.037345	0.0049		1.40E-04	2.92E-03	4.90E-03
EP1402	1200-BN-203 - Fine Ore Bin (out) fully enclosed	NA	D	0.00014	83.3	1067	280000	0.0117	0.1494	0.0196	100%	0	0	0		1.40E-04	0.00E+00	0.00E+00
EP1501	1400-SI-401 - Cement Silo (in)	NA	F	0.00034	20	40	4000	0.0068	0.0136	0.0007		0.0068	0.0136	0.00068		0.00099	1.98E-02	1.98E-03
EP1502	1400-SI-401 - Cement Silo (out) fully enclosed	NA	D	0.00014	20	40	4000	0.0028	0.0056	0.0003	80%	0.00056	0.00112	0.000056		1.40E-04	5.60E-04	5.60E-05
	TOTAL																	

	A	Truck unloading, fragmented stone
Emission factors referenced are all from AP-42 Section 11.19.2, Table 11.19-2	B	conveyor transfer point
except as noted to the right	C	Truck unloading, crushed stone
	D	conveyor transfer point (controlled)
Tram scenario only	E	AP-42 13.2.4 for aggregate handling. See below
No tram scenario only	F	AP42 Table 11.12-2 for controlled cement unloading to elevated storage silo (pneumatic)

Control Efficienices

Fine Ore Bin outflow	100% physically enclosed from bin into concentrator building, where material immediately enters a wet process.
Cement Silo outflow	80% controls, almost entirely physically enclosed from bin into concentrator building, where material immediately enters a wet process,
Truck Dump, tailings	90% controlled by 18 - 20% moisture content, moisture added during concentration process
Toppsoil load / unload	50% control over dry material due to soil moisture
Fine Ore Bin filtered sock vent	Very consevatively estimated since same filter system on cement silo is given >99.9% controls in AP-42

All sources modeled based upon mean horiz dimensions of the truck, loader, or area of activity, rel ht from mean ht of emitting activity, vert extent based upon dimensions of generating equipment (tk, loader, pile, ...)
Fine Ore Bin and Cement Silo inflow hor dimensions based upon size of sock filter vent, vert dims based upon silo height/shape. Outflows from those sources are fugitives from possible small openings in enclosure system

FRONT END LOADING/STOCKPILE DISTURBANCE EMISSIONS

$PM=(k)*(0.0032)*((U/5)^{1.3})/((M/2)^{1.4})$	AP-42 13.2.4-3 Equation (1)
$PM_{10}=(k')*(0.0032)*((U/5)^{1.3})/((M/2)^{1.4})$	AP-42 13.2.4-3 Equation (1)

Where

k=	Particle size multiplier for PM	0.74	Page 13.2.4
k'=	Particle size multiplier for PM_{10}	0.35	Page 13.2.4-4
U=	Mean wind speed	7	Conservative estimate from 2004 measured
M=	For drier material moisture content	5 %	from column above
	For wetter material	19 %	

	For 5% MC material		For 19% MC material
Uncontrolled PM =	0.00102	lbs/ton	0.00016
Uncontrolled PM_{10} =	0.00048	lbs/ton	0.00007

AP-42 Fifth Edition Jan 95
Section 13 Miscellaneous Sources
13.2 Fugitive Dust Sources
13.2.4 Aggregate Handling and Storage Piles

Blasting (combustion)

AP-42 Section 13.3 utilized to calculate
emissions from blasting material.

1511	tons rock blasted/day
2	lbs ANFO used / ton of rock

1.511	tons ANFO/day = (tons rock blasted) / 2000 lbs/ton) * (lbs ANFO / ton rock)

max lbs/hr conservatively assumes 1.5 times average hourly emissions for 8 hr/day
365 days/yr

	EF lbs/ton ANFO	Uncontrolled			Controlled		
		Max lbs/day	Max lbs/hr	Max tons/yr	Max lbs/day	Max lbs/hr	Max tons/yr
NO2	17	25.7	4.8	4.7	25.7	4.8	4.7
SO2	2	3.0	0.6	0.6	3.0	0.6	0.6
CO	67	101.2	19.0	18.5	101.2	19.0	18.5
PM-10	N/A	N/A	N/A	N/A			

Blasting Dust

No particulate emission factor for blasting. Moisture and retention time should
minimize any blasting particulate emissions

lbs/charge
charges/day
charges/yr

Uncontrolled PM-10			Controlled PM-10		
lbs/hr	lbs/day	tons/yr	lbs/hr	lbs/day	tons/yr

Drilling Dust

Drilling is a wet process, which results in complete particulate
emissions control

Material Transfers

80 % relative himidity
20 minutes mean mine retention time before vented
high % resulting mine particulate emission control

The 20 minute retention time is based upon the mine ventilation system,
which is desgined to turn over the air in the mine once per hour.
The 20 minutes is consevative since the ventilation system will eb temporarliy shut down
or lowered when blasting, which typically occurs in teh further distances
from the ventilation system vent, the portal at the mouth of the mine

One pick up and one drop per load of ore
2 number of transfers

Fugitive Source	Moisture content	AP-42 Table 11.19-2 PM EF (lbs/ton)	AP-42 Table 11.19-2 PM10 EF (lbs/ton)	Max thruput tons/hr	Max thruput tons/day	Max thruput tons/yr	Uncontr Max PM10 emiss lbs/hr	Uncontr PM10 Max emiss lbs/day	Uncontr Max PM10 emiss tons/yr	Control Efficiency	Contr Max PM10 emiss lbs/hr	Contr Max PM10 emiss lbs/day	Contr Max PM10 emiss tons/yr	Contr Max PM emiss tons/yr	AP-42 EF reference (see Material Balance worksheet)
Loader grab from Mine	5%	1.60E-05	1.60E-05	100	2500	400000	0.0016	0.0400	0.0032		0.0008	0.0200	0.0016	0.0016	A
Loader dump into Truck	5%	0.00102	0.00048	100	2500	400000	0.0481	1.2023	0.0962		0.0240	0.6011	0.0481	0.1017	E
Totals							0.0497	1.2423	0.0994		0.0248	0.6211	0.0497	0.1033	

Mine humidity, mine retention time result in 50% control efficiency

Watering or chemical dust suppression will be used if necessary when visible dust to maintain dust control efficiency

Vehicle Emissions

Mine humidity, mine retention time, and large particle sizes result in 50% control efficiency

Vehicle and Weight (tons)	Miles Driven/Day	Effective Weight, empty (tons)	Effective Weight, full (tons)	Mean Weight (tons)	E (lbs/VMT)	Uncontrolled PM-10			Controlled PM-10		
						max lbs/hr	lbs/day	tons/yr	lbs/hr	lbs/day	tons/yr
Haul truck	1.76	21	42	31.5	2.454287	0.54	4.3	0.8	0.27	2.16	0.39
Shotcrete truck	1.76	10	20	15	1.757627	0.58	3.1	0.6	0.29	1.55	0.28

Loader	3	60	75	67.5	3.458376	1.95	10.4	1.9	0.97	5.19	0.95
Totals	6.52					3.07	17.79	3.25	1.53	8.89	1.62

Very conservative assumptions on laoders

AP-42 13.2.2 equation (1a), updated 12/03, for unpaved road traffic on an industrial site
  with precip reduction from AP-42 13.2.2.2 equ 2

$$E = k\left(\frac{s}{12}\right)^{a}\left(\frac{W}{3}\right)^{b}\left(\frac{365-P}{365}\right)$$

E = Emission Factor (lb/VMT)[1]

s = surface material silt content (%)

W = mean vehicle weight (tons)

a, b, k = emipirical constants

P = number of days in a year with at least 0.01 inches of precipitation

Road emissions were
- Roads are covered with gravel/crush limestone
  - The mean silt content is 6.4% (Table 6-2, WRAP Fugitive Dust Handbook, 2006).

Constants	$PM_{2.5}$	PM_{10}	PM
k	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

s= 6.4

P= 0   underground

Cumulative underground emissions exhausting from the mine

	Uncontrolled			Controlled			
	lbs/hr	lbs/day	tons/yr	lbs/hr	lbs/day	tons/yr	Model source name
NO2	4.8	25.7	4.7	4.82	25.7	4.69	EP1601
SO2	0.6	3.0	0.6	0.57	3.0	0.55	
CO	19.0	101.2	18.5	18.98	101.2	18.48	
PM-10	3.1	19.0	3.3	1.56	9.5	1.67	

Modeled as a volume source at the 15' high mine portal where the mine ventilation system releases into ambient air

TAPs from Ore

Total PM
lbs/hr
2.2013 (road dust not included)

IDAPA TAP listing		elemental form	Percent (%) by weight of ore	TAP Emission (lbs/hr)	IDAPA EL	Ratio of TAP to EL	Require Modeling?	AAC (ug/m3)	AACC (ug/m3)	Modeled impact (ug/m3)	Can T-RACT be employed?	T-RACT Adjusted AACC	Ratio of modeled results to Applicable Impact Limit	Pass T-RACT?
aluminum,	Al Metal and oxide		N/A				no							
	Al Pyro Powders	silicate	5.04	1.11E-01	0.333	0.33	no							
	Al Soluble Salts	silicate	5.04	1.11E-01	0.133	0.83	no							
antimony, compounds			0.0015	3.30E-05	0.033	0.00	no							
arsenic, ***		Cobaltite CoAsS	0.71	1.56E-02	1.50E-06	10419.60	yes		2.30E-04	1.58E-03	yes	2.30E-03	0.69	yes
beryllium/compounds			0.00002	4.40E-07	2.80E-05	0.02	no							
cadmium/compounds			0.000005	1.10E-07	3.70E-06	0.03	no							
chromium, metal		trace element, no CrVI					no							
	Cr (II) compounds	trace element, no CrVI	0.007	1.54E-04	0.033	0.00	no							
	Cr (III) compounds	trace element, no CrVI	0.007	1.54E-04	0.033	0.00	no							
	CrVI	trace element, no CrVI		0.00E+00	5.60E-07	0.00	no							
Cobalt	Co Carbonyl	dominantly Cobaltite CoAsS	1.41	3.10E-02	0.007	4.43	yes	5		0.00983			0.002	
	Co hydrocarbonyl	dominantly Cobaltite CoAsS	1.41	3.10E-02	0.007	4.43	yes	5		0.00983			0.002	
	Co Metal Dust, Fume	dominantly Cobaltite CoAsS	1.41	3.10E-02	0.0033	9.41	yes	2.5		0.00983			0.004	
Copper	Cu Fume		0.7	1.54E-02	0.13	0.12	no							
	Cu Dust and Mists		0.7	1.54E-02	0.067	0.23	no							
iron,	iron oxide fume		13.36	2.94E-01	0.333	0.88	no							
lead,			0.00009	1.98E-06	0.1488	0.00	no							
manganese,	Mn dust and compounds		0.0163	3.59E-04	0.333	0.00	no							
mercury,	Hg (Aryl and Inorganic)		0.00003	6.60E-07	0.007	0.00	no							
molybdenum,			0.00009	1.98E-06	0.333	0.00	no							
nickel,	Nickel		0.002	4.40E-05	2.70E-05	1.63	yes	0.0042		0.00001			0.002	
selenium,	Se compounds		0.0009	1.98E-05	0.013	0.00	no							
silver,	Ag Metal		0.00003	6.60E-07	0.007	0.00	no							
	Soluble compounds		0.00003	6.60E-07	0.001	0.00	no							
tungsten,	Insoluble Compounds		0.00026	5.72E-06	0.333	0.00	no							
	Soluble Compounds		0.00026	5.72E-06	0.067	0.00	no							
uranium, compounds			0.00003	6.60E-07	0.013	0.00	no							
zinc, metal			0.0034	7.48E-05	0.667	0.00	no							
	Zn chloride fume		0.0034	7.48E-05	0.067	0.00	no							
	Zn oxide fume		0.0034	7.48E-05	0.333	0.00	no							
	Zn oxide dust		0.0034	7.48E-05	0.667	0.00	no							
zirconium, compounds			0.0013	2.86E-05	0.333	0.00	no							

Lead emission threshold listed is equivalent to modeling threshold of 100 lbs/mo in IDEQ Modeling Guidelines Table 1

***	%As by wt
Ore	0.7100
Waste rk, tailings	0.0710
Mined rock	0.5255

This worksheet calculates arsenic emissions in the base case and with possible enclosures around the three operating areas (Ram Portal material transfers, Mill Site materials transfers, and the TWSF material transfers). Based on the ton per year change in emissions by enclosing fugitive emission sources at the three aforementioned locations, a cost per ton for additional controls on the emissions is derived. The cost estimate for the enclosure scenario is described separately.

The cost per ton to reduce the emissions using enclosures and baghouses over a 10 year mine life is extrodinary and not economically feasible.

Notes:
The proposed base case scenario represent the same controls that were accepted as LAER for a major source in a non-attainment area.
Emissions included in this calculation include only those related to the "No Tram" scenario (Most Conservative Scenario).

Source ID	Source	PM lbs/hr	tpy	Arsenic ton/yr Base Case	Arsenic ton/yr Enclosures
PORTAL					
EP1301	Mined Rock truck dump	0.002	0.003	1.68E-05	1.68E-06
EP1303	Loader grab from mined rock pile	0.002	0.003	1.68E-05	1.68E-06
EP1304	Loader drop to Truck	0.102	0.203	1.07E-03	1.07E-04
EP1302	Mined Rock stockpile	0.0146	0.0004	1.95E-06	1.95E-07
EP1101	1200-BN-201 - Mined Rock to Tram Bin	0.002	0.003	1.68E-05	1.68E-06
EP1102	1200-FE-201 - Bin to Tram	0.002	0.003	1.68E-05	1.68E-06
	Total PORTAL	**0.1227**	**0.2165**		
MILL SITE					
EP2001	Truck Dump Crusher Ore Pile (no tram scenario)	0.001	0.002	1.59E-05	1.59E-06
EP301	Ore Stockpile	0.031	0.001	5.68E-06	5.68E-07
EP302	1200-LD-201- Tram Bin to Coarse Ore Stockpile	0.001	0.002	1.59E-05	1.59E-06
EP303	Loader grab from Coarse Ore Stockpile	0.001	0.002	1.59E-05	1.59E-06
EP401	Waste Rock Stockpile	0.014	0.000	2.52E-07	2.52E-08
EP402	1200-LD-201- Tram Bin to Waste Rock Stockpile	0.002	0.001	6.82E-07	6.82E-08
EP403	Loader grab from Waste Rock Stockpile	0.018	0.061	4.33E-05	4.33E-06
EP404	Loader dump Waste Rock Stockpile into Truck	0.018	0.061	4.33E-05	4.33E-06
EP1201	Loader drop to Primary Crusher feed bin	0.085	0.142	1.01E-03	1.01E-04
	Total MILL SITE	**0.1724**	**0.2732**		
TWSF					
EP601	TWSF Waste Rock truck dumping	0.002	0.001	6.82E-07	6.82E-08
EP602	TWSF area management	0.372	0.268	1.90E-04	1.90E-05
EP603	TWSF wind eroision	1.209	0.031	2.18E-05	2.18E-06
EP604	Truck Dumps Tailings TWSF	0.000	0.001	4.63E-07	4.63E-08
	Total TWSF	**1.5828**	**0.3003**		
				2.45E-03	2.45E-04

Reduction (tpy) =	0.0022
(lb/y) =	4.4
Total (ton) * =	0.024
(lb) =	48.561

	Base Case	Enclosures
COST	$0	$36,800,000
COST PER TON	$0	$16,671,661,946
COST PER TON *	$0	$1,515,605,631

Represents emmissions sources related to the "Tram" scenario.
Emission rate using moisture control as the P2 technique in the Base Case scenario
Emission rate after enclosing the emission sources at the Portal, Mill Site, and TWSF. Emission rates were reduced 90% to represent a reasonable control efficiency using bag houses.

* Assumes an 11 year mine life.

Attachment 2

Mill Processing Limitation Data

MTB

August 5, 2008
Letter No. ICP-044

Mr. Guy Jeske
812 Shoup Street
Salmon, ID 83467

Subject: Job No. 0702, Idaho Cobalt Project
               Statement of Physical Throughput Limitations

Dear Mr. Jeske,

Ore throughput of the Idaho Cobalt Project concentrator is physically limited by the design of the component equipment. The primary limiting piece of equipment is the ball mill. The system is considered operational if the ball mill is receiving feed from the Fine Ore Bin. Therefore operating availability is calculated based on the percentage of the total time that the ball mill is receiving feed. The overall design availability of the ball mill, and therefore the concentrator is, 92%. However, there will be days when the system operates 100% of the time.

The ball mill is being supplied by Outotec (formerly Outokumpu Technology). Nominal capacity of the concentrating system is 36.2 short tons per hour (STPH). The ball mill manufacturer adds a design factor to assure that this rate can be achieved and maintained as the components wear. The theoretical capacity of the ball mill is 41.7 STPH as shown on the bottom of the attached Mill Size Calculations. The attached sheet forms part of the purchase order for the supply of the ball mill.

The physical throughput limitation for the ball mill (concentrating system) is 41.7 STPH x 24 hours which equals 1000.8 short tons per day.

Sincerely,

Daniel L. Blakeman
Manager of Projects
MTB Project Management Professionals, Inc.

Cc: Bill Scales
       Annette McFarland
       Mariana Schmid
       File

Outokumpu
Technology

7 MILL SIZE CALCULATIONS

OUTO KUMPU	BALL MILL SIZE AND POWER SPECIFICATION V 1.0
Grinding	Client: Hatch
Created By: Travis Orser	Project: Idaho Cobolt
	Case: Mill Size
	Date: 01/05/06

Discharge Type	Grind Type	Circuit Type	Liner Type	Liner Status		Ball Mill Type
● Overflow	● Wet	○ Open	○ Steel	New:	75 mm	● Trunnion Supported
○ Grate	○ Dry	● Closed	● Rubber		3.0 in	○ Shell Supported
○ Peripheral				Worn:	75 mm	
○ Open Ended	Grate Level				3.0 in	
	○ Low ○ Intermediate	○ Full ● NA		Trunnion Bearing Type		
				○ Journal Bearings	● Roller Bearings	

Inside Shell Diameter of Mill				
9.5 ● Feet	○ Meters	2.90 m	Work Index: Rod	10.0 kWh/mt
			Work Index: Ball	11.5 kWh/mt
Effective Grinding Length			Work Index: Impact	8.0 kWh/mt
16.0 ● Feet	○ Meters	4.88 m	F80	9,525 um
			P80	70 um

			Drive Efficiency	95 %
L:D Ratio	1.68		Cyc. Feed Fraction to U/F	1
Rubber Backing	6 mm	0.24 in	Operating Hours / Year	8000 hrs
Critical Speed	75 %		Number of Mills	1
Normal Charge Volume	32 %			
Max. Charge Volume	40 %			
Diameter Makeup Balls	75 mm	3.0 in		
Ore S.G.	2.9	181.0 lb/ft3		
Mill Volume	28.62 m3	1010.5 ft3		
Mill Speed	19.19 rpm			
Media Type	Forged Steel			
Charge Weight	42.6 mt	47.0 st		

Efficiency Factor Calculations		Notes
EF1: Dry Grind Factor	1.00	
EF2: Open Circ. Ball Milling Factor	1.00	
% Passing Control Reference Point		
EF3: Diameter Efficiency Factor	0.98	
EF4: Oversized Feed Factor	1.04	
Fo: Optimum Feed Size	4,465	
Rr: Reduction Ratio	136.1	
EF5: Fineness of Grind Factor	1.00	
EF7: Low Ratio of Reduction Ball Milling	1.00	
Special Efficiency Factor	1.00	
Product of Efficiency Factors	1.02	
Uncorrected Specific Power Draft	12.57 kWh/mt	
Corrected Specific Power Draft	12.77 kWh/mt	
Fines Corrected Specific Power Draft	12.77 kWh/mt	
Uncorrected Kwb	10.68 kW/mt of balls	
Grate Discharge Kwb multiplier	1.00	
Slump Correction Factor (Ss)	0.64 kW/mt of balls	
Slump Factor Inside Liner Diameter	3.30 m	
Rubber Liner Power Loss	0.0 %	
Big Ball Mill Correction Factor	1.00	
Corrected Kwb + Ss + Rubber	11.32 kW/mt of balls	
Ball Size Selection	68 mm	

	New Liners & Normal Charge Volume			Motor Selection	
Pinion Power	483 kW	647 HP			
Motor Power	508 kW	681 HP		559 kW	750 HP
Throughput	37.8 mtph	41.7 stph			
Annual Capacity	3.0E+05 mtpy	3.3E+05 stpy			

OUTOKUMPU TECHNOLOGY INC.
10771 East Easter Avenue, Suite 120, Centennial, CO 80112
Tel: (303) 792-3110, Fax (303) 799-6892

Attachment 3

Emergency Generator Data

SE Samuel Engineering, Inc.
We Provide Solutions

BID EVALUATION – ENGINEERING TECHNICAL REVIEW

REVIEWED BY: Jordan Arnold / Josh Jenkins   DATE: 04/03/08

PROJECT NAME: Idaho Cobalt Concentrator

PROJECT NUMBER: 7031-01

SPECIFICATION NO.:   16230 – Standby Power Generation

EQUIPMENT DESCRIPTION: 750kW, 480V, 3-phase, 60Hz, Diesel Fueled, Weather Protected, EPA
Tier 2 Certified, Standby Generator Set with Permanent Magnet
Excitation, Control Panel, Circuit Breaker, Skid Tank, etc.

BIDS RECEIVED &   Wagner Power Systems (Caterpillar), Stewart and Stevenson (Detroit Diesel),
EVALUATED: Cummins Rocky Mountain LLC (Cummins) (parenthesis indicates equipment
manufacturer)

DISCUSSION: Full technical analysis was completed based on information received by each
supplier. Overall cost, along with drawing and delivery lead times was also
reviewed.

Wagner meets all required specifications. They provide a C27 engine, SR4B
generator, 800kW rated unit for a site output of 750kW. They provide a 600 gallon
tank. At 100% load, fuel usage is 57.2 gal/hr which allows for a 10.5 hour run time.
They provide permanent magnet excitation system which starts up to 1,913kVA.
They provide a digital EMCP 3.2 control system which allows for protection,
metering, and control through a LCD display. They provide a weatherproof
enclosure with and option adder for a sound attenuated weatherproof enclosure for
85dbA at 3 feet for an additional $62,000. Startup and Commissioning is included.

Stewart and Stevenson (S&S) meets all required specifications. They provide a G84
engine, 750kW generator for a site output of 734kW. They provide a 550 gallon
tank. At 100% load, fuel usage is 54.2 gal/hr which allows for a 10.1 hour run time.
S&S also quoted an option adder for a 1000 gallon tank at and additional $2,300. At
100% load, the 1000 gallon tank provides a 19 hour run time. They provide a
permanent magnet excitation system which starts up to 2,120kVA. They provide a
digital DGC-2020 control system which allows for protection, metering, and control
through a LCD display. They provides a weatherproof enclosure. Startup and
Commissioning is included as an option adder of an additional $6,000.

Cummins Rocky Mountain LLC meets all required specifications. They provide a
QST30-G5 NR2 engine, 750kW generator for a site output of XXXkW. They
provide a 632 gallon tank. At 100% load, fuel usage is 52.7 gal/hr which allows for
a 12 hour run time. They provide permanent magnet excitation system which starts
up to 2,655kVA. They provide a digital PowerCommand control system which
allows for protection (AmpSentry), metering, and control through a LCD display.
They provide a weatherproof enclosure with and option adder for a sound attenuated
weatherproof enclosure for 75dbA at 50 feet for an additional $13,800. Startup and

Commissioning is included.

Wagner provides the most recognizable unit (Caterpillar) with known durability and reliability.

Cummins provides a recognizable unit (Cummins) that is more known for commercial applications.

Stewart and Stevenson provide a less recognizable unit (Detroit Diesel) but known for durability and reliability.

All bidders are technically acceptable. Stewart and Stevenson provide the best delivery and price at 18-20 weeks and $125,100. Cummins Rocky Mountain LLC provide the second best delivery and price at 22-23 weeks and $148,024. Wagner Power Systems provide the third best delivery and price at 36 weeks and $223,200.

UNRESOLVED QUESTIONS/ COMMENTS: Cummins – exact output kW at site elevation.

RECOMMENDATIONS: Stewart and Stevenson with the Detroit Diesel Generator.

SIGNED: _____ Joshua Jenkins/Leroy Wallin   **DATE:** 04/03/08

CONCURRENCE: _____ Lonnie Leger   **DATE:** 4/3/08

STANDBY DIESEL GENERATOR PACKAGE

Description	Bidder A	Bidder B	Bidder C
Vendor	Wagner Power Systems	Stewart and Stevenson	Cummins Rocky Mountain LLC
Contact	Bob Keller	George Diaz	Willy Colby
Address	18091 E. 22nd Ave	5840 Dahlia St.	8211 East 96th Avenue
	Aurora, CO 80011	Commerce City, CO 80022	Henderson, CO 80640
WEB	www.wagnerpower.com	www.ssss.com	www.cumminspower.com
Phone No.	303-680-9808	303-287-7441	303-287-0201
Fax No.	303-739-3190	720-322-7527	303-287-4837
E-Mail	Cat4power@msn.com		
Date:	3/20/2008	3/20/2008	3/20/2008
Quote Reference Number	07RMK0063	D080320	WC3921-US
Equipment			
1900-GE-901 Standby Diesel Generator	$223,200.00	$125,100.00	$148,024.00
Optional Adders			
85 dbA Package Enclosure w/ add'l upgrades	$62,000.00		
75 dBA @ 50' Sound Attenuated Enclosure			$13,800.00
Total Equipment Cost w/Adders	$285,200.00	$125,100.00	$161,824.00
Drawings & Delivery			
Approval Drawings	Not Stated	Not Stated	Not Stated
	Startup and commisioning included, installation not included	Startup and installation not included. Startup estimate 40hr X $150/hr = $6000 + mileage	Startup and commisioning included, installation not included
Freight	FOB jobsite	Not Stated	FOB jobsite
Delivery Time	36 weeks after release to manufacturing	18-20 weeks ARO	22-23 weeks ARO (could be sooner based on stock availibility)
Payment Terms	95% payment due net 30 days after delivery, 5% payment due upon completion of startup	All invoices shall be payable within 30 days	
Currency	U.S. dollars	U.S. dollars	U.S. dollars
Price Validity	60 Days	30 Days	
Duties			
Taxes	Not Included	Not Included	Not Included
Liability			
Cancellation	Not Stated	Orders for Goods or Services may not be cancelled by Buyer after acceptance by Seller	
Warranty	2 years from date of startup, not to exceed 30 months from shipment from the factory	2 year, 3,000 hour limited warranty	Two year base warranty. One year limited warranty. Extended warranty options are available for coverage up to 10 years

Technical Comparison (Attachment B)

GENERAL			
Manufacturer	Caterpillar, Inc.	Detroit Diesel MTU	Cummins
Model No.	C27	750RXC5DT2	750 DQFAA
Type	4-Stroke Diesel	Diesel Engine Generator	750kW ONAN Diesel Fueled Gen
Equipment Number	1900-GE-901	1900-GE-901	1900-GE-901
RATINGS			
Name plating rating, kW	800 kW Standby	750 kW	750 kW
Output rating at site, (8000' ASL)		734 kW	
Frequency	60 Hz	60 Hz	60 Hz
Voltage	480 / 277V, 3 phase	480 / 277V, 3 phase	480 / 277V, 3 phase
GENSET PACKAGE PERFORMANCE			
Power rating at 0.8 power factor	800 kW	750 kW	750 kW
Power rating with fan	800 kW	750 kW	750 kW
FUEL CONSUMPTION			
100% load with fan	57.2 GPH	54.2 GPH	52.7 GPH
75% load with fan	45.3 GPH	41.0 GPH	39.8 GPH
50% load with fan	32.3 GPH	27.7 GPH	27.1 GPH
EXHAUST SYSTEM			
Exhaust stack gas temperature	955°F	1,040°F	816°F
Exhaust gas flow rate	6,045.9 CFM	5,297 CFM	6,310 CFM
Exhaust flange size (inner diameter)	8"	8"	
Exhaust system backpressure (max allowable)	27" H_2O	34.1" H_2O	27" H_2O